SPATIAL PRICE INDEXES

Yellowknife — Edmonton
June 1984

Northwest Territories Canada

85-3682/

SPATIAL PRICE INDEXES

YELLOWKNIFE-EDMONTON

JUNE 1984

BUREAU OF STATISTICS
GOVERNMENT OF THE NORTHWEST TERRITORIES
SEPTEMBER 1984

Spatial Price Indexes
Yellowknife-Edmonton, June 1984

Copies available at $2.00
ISSN 0824-8184

Published by the:
Department of Information
Government of the Northwest Territories
Yellowknife, Northwest Territories, X1A 2L9

September 1984

FOREWORD

For June 1984 estimates of price level differences between Yellowknife and Edmonton were developed based on results of the June 1982 spatial price survey and subsequent price changes in each center as measured by the Consumer Price Index. The estimation procedure yields reliable spatial price information for major components of consumer expenditure at a considerable cost saving compared to undertaking a survey.

The calculation of June 1984 spatial price estimates was made possible through the co-operation and assistance of Statistics Canada which provided data required to calculate the June 1984 spatial price indexes. Prior to Statistics Canada's extension of the Consumer Price Index to Yellowknife (beginning with March 1982), it was not possible to estimate spatial price differences between Yellowknife and Edmonton, necessitating spatial price surveys to develop this information.

Any questions regarding results or methodology should be directed to:

Mr. Nunda Rao
Bureau of Statistics
Government of the Northwest Territories
Yellowknife, N. W. T.
X1A 2L9

Phone: (403) 873-7147

TABLE OF CONTENTS

	Page
FOREWORD	III
INTRODUCTION	1
HIGHLIGHTS	3
COMPARISONS WITH JUNE 1981, 1982 AND 1983 INDEXES	5
APPENDIX A - METHODOLOGY	7
APPENDIX B - ITEMS INCLUDED	13

INTRODUCTION

Since June 1980 the Bureau of Statistics has prepared spatial price indexes comparing price levels in Yellowknife and Edmonton on an annual basis. Surveys were undertaken for June 1980, 1981 and 1982. With the extension of Statistics Canada's monthly Consumer Price Index to Yellowknife beginning March 1982, information exists to estimate Yellowknife-Edmonton price differences without completing a spatial price survey. Estimation procedures were adopted for calculating June 1983 and June 1984 spatial price indexes.

In this report, price differences between Yellowknife and Edmonton are expressed as index numbers where the index value for Edmonton is set at 100. An index value x points higher (lower) than 100 indicates a price level x percent higher (lower) in Yellowknife compared to Edmonton. These index numbers may be interpreted as how much more (or less) an Edmonton household would pay if its consumer expenditures were made at Yellowknife prices.

Index values for June 1984 are calculated by combining price information for items included in various commodity groupings. This averaging procedure reflects the importance of those items for Edmonton household budgets as determined from Statistics Canada's 1978 family expenditure survey. The relative importance of each commodity, or grouping of commodities, is referred to as its weight and is expressed as a percentage of total household expenditures at June 1984 prices for those consumer goods and services included in the survey.

Consumer items included in the Yellowknife-Edmonton spatial price estimation procedure represent about 90 percent of Edmonton household expenditures monitored for CPI purposes, measured in dollar terms. Major exclusions are mortgage interest and depreciation on dwellings for which spatial price comparison methods have not yet been developed. Edmonton expenditure weights are used since the appropriate family expenditure information is not available for Yellowknife.

HIGHLIGHTS

For June 1984 it is estimated that consumer prices were on average 33 percent higher in Yellowknife compared to Edmonton. This means that goods and services purchased for $100 in Edmonton cost approximately $133 at Yellowknife prices. The purchasing power of the Edmonton dollar in Yellowknife was therefore about 75 cents.

As indicated below, Yellowknife prices were higher for all major components of household expenditure identified in the Consumer Price Index. Price differences were the greatest for those expenditures related to housing (index = 162), while prices for health and personal care items were about 30 percent higher than those in Edmonton. Prices for food items were higher by about 25 percent while those for transportation items were higher by about 23 percent. Taken together, these categories represent about 74 cents of the consumer dollar. Price indexes for the remaining categories were lower than 120.

ESTIMATED PRICE INDEXES AND WEIGHTS, by Major Component
Yellowknife, June 1984

	Weight	Price Index
	(%)	(Edmonton = 100)
All Items	100.0	132.8
Food	21.3	124.7
Housing	28.5	162.0
Clothing	9.9	118.4
Transportation	20.1	122.8
Health and Personal Care	3.8	129.9
Recreation, Reading and Education	9.8	115.3
Tobacco and Alcohol	6.7	112.7

Comparisons with price indexes calculated for earlier years are presented in the following section. Details on methods used to develop June 1984 spatial price indexes are provided in Appendix A. The list of items used to determine the spatial price indexes is provided in Appendix B.

COMPARISONS WITH THE JUNE 1981, 1982 AND 1983 INDEXES

Spatial price indexes for June 1981 through June 1984 are presented below for the major components of consumer expenditure included in the Consumer Price Index.

SPATIAL PRICE INDEXES, by Major Component
Yellowknife, June 1981-84

	1984	1983	1982	1981
		(Edmonton = 100)		
All items	132.8	130.2	128.1	124.7
Food	124.7	125.1	125.0	120.3
Housing	162.0	154.4	150.5	139.8
Clothing	118.4	117.4	115.3	110.3
Transportation	122.8	119.7	116.7	119.3
Health and Personal Care	129.9	124.4	118.0	113.8
Recreation, Reading and Education	115.3	115.5	115.7	115.2
Tobacco and Alcohol	112.7	116.1	119.4	135.6

Since June 1981, price differences between Yellowknife and Edmonton have increased from a level 25 percent higher in Yellowknife in June 1981 to 33 percent higher in June 1984. This represents a 6 percent increase in price differences between the two communities. The major contributor to this growth in the overall spatial price index has been expenditures related to housing - those prices associated with shelter, household operation, and household furnishings and equipment. (Mortgage interest and depreciation on dwellings are not included in the price index.) Price differences for tobacco and alcohol decreased over the period.

Care should be taken when comparing these spatial price indexes over time. Changes in relative price levels between Yellowknife and Edmonton, as indicated by these price indexes, result from the initial price differences between the communities and subsequent temporal price changes within each community. It should also be kept in mind that the June 1984 and June 1983 results are based on estimation procedures, while results for earlier years were determined directly from surveys. Methodology for the earlier surveys is described in the report Spatial Price Survey, Yellowknife-Edmonton, June 1982.

APPENDIX A

METHODOLOGY

METHODOLOGY

1. Introduction

For June 1980, 1981 and 1982 spatial price indexes comparing Edmonton and Yellowknife average retail prices were calculated directly from survey information collected in both centres. Since June 1983, the Yellowknife-Edmonton spatial price indexes are estimated from the June 1982 spatial price index and subsequent temporal price changes as measured by the Consumer Price Indexes for Edmonton and Yellowknife. Spatial price information based on this procedure includes an overall price index as well as indexes for broad categories of consumer items. Price indexes at the level of detail provided in the earlier spatial price surveys were calculated during the estimation procedure, but are not included in this report.

2. Method

The June 1982 Yellowknife-Edmonton spatial price index was calculated by summing the product $w_{E82} \cdot r_{YE82}$ for each item. Here the w_{E82} are June 1982 CPI expenditure weights for Edmonton and the r_{YE82} are corresponding item-level spatial price indexes calculated from Yellowknife and Edmonton survey data.

For June 1984, the overall spatial price index was calculated by summing the product $w_{E84} \cdot r_{YE84}$, where the w_{E84} are June 1984 CPI expenditure weights for Edmonton and the r_{YE82} are the corresponding item-level spatial price indexes. In the absence of survey information, the price index for each item was estimated. The procedure for estimating these spatial price indexes is as follows:

$$r_{YE84} = r_{YE82} \cdot \frac{r_{Y84/82}}{r_{E84/82}}$$

where $r_{Y84/82}$ is the temporal price index for the item in Yellowknife for June 1984 compared to June 1982, and $r_{E84/82}$ is the corresponding temporal price index for Edmonton.

3. **Example**

The procedure for estimating a spatial price index based upon temporal price movements can be illustrated by means of an example, using hypothetical data. In this example, the calculation of a Yellowknife-Edmonton spatial price index for canned vegetables is outlined.

Hypothetical data comparing Yellowknife and Edmonton prices for canned vegetables in June 1982 are provided in the following table:

	Spatial Price Index (Edmonton = 100)	Expenditure Weight
Canned vegetables	121.0	1.000
Beans	120.3	0.400
Peas	123.5	0.300
Carrots	119.4	0.300

Based on this table, the June 1982 spatial price index for canned vegetables in Yellowknife would be 121.0. This index is based on expenditure weights for canned beans, peas and carrots, and the prices observed for these items in Yellowknife and Edmonton.

Suppose price increases for canned vegetables over the period June 1982 to June 1984 yield the following temporal price indexes for Yellowknife and Edmonton:

	Temporal Price Index	
	Yellowknife	Edmonton
	(June 1982 = 100)	
Beans	110.3	109.6
Peas	108.2	110.1
Carrots	112.7	110.2

As outlined in section 2, this temporal price information can be used to estimate June 1984 Yellowknife-Edmonton spatial price indexes for each item using the formula:

$$r_{YE84} = r_{YE82} \cdot \frac{r_{Y84/82}}{r_{E84/82}}$$

The calculated results of this procedure are:

(I) canned beans - $120.3 \times \frac{110.3}{109.6} = 121.1$

(II) canned peas - $123.5 \times \frac{108.2}{110.1} = 121.4$

(III) canned carrots - $119.4 \times \frac{112.7}{110.2} = 122.1$

June 1984 expenditure weights calculated for Edmonton, combined with estimated spatial price indexes for each item, yield the Yellowknife-Edmonton spatial price information for June 1984 outlined in the following table:

	Spatial Price Index (Edmonton = 100)	Expenditure Weight
Canned vegetables	121.5	1.000
Beans	121.1	0.399
Peas	121.4	0.300
Carrots	122.1	0.301

For June 1984, the estimated Yellowknife-Edmonton spatial price index for canned vegetables would be 121.5, compared to 121.0 for June 1982.

APPENDIX B

ITEMS INCLUDED

ITEMS INCLUDED

FOOD ITEMS

FOOD PURCHASED FROM STORES:

Meat, Poultry and Fish

Beef Loin Cuts
Beef Hip Cuts
Beef Rib Cuts
Beef Shoulder Cuts
Stewing Beef
Ground Beef
Beef Sausage

Bacon
Smoked Ham
Pork Loin Cuts
Pork Shoulder Cuts
Pork Sausage
Spareribs

Veal
Lamb
Liver
Weiners
Canned Meats
Luncheon Meats

Chicken
Turkey
Frozen Fish
Canned Salmon
Canned Tuna
Canned Seafood

Dairy Products and Eggs

Fluid Whole Milk
Low Fat Milk
Butter
Cheddar Cheese
Processed Cheese

Large Eggs

Evaporated Milk
Ice Cream
Sour Cream
Cottage Cheese

Cereal and Bakery Products

Rice
Flour
Pasta Products
Breakfast Cereals
Cake Mixes

Bread
Crackers
Doughnuts
Rolls, buns, muffins

Fruit and Vegetables

Apples
Bananas
Grapefruit
Oranges
Pears
Lemons

Canned Apple Juice
Canned Orange Juice
Canned Peaches
Canned Pears
Canned Fruit Cocktail
Canned Pineapple
Frozen Strawberries
Raisins

Cabbage
Carrots
Celery
Green Peppers
Cucumbers
Lettuce
Onions
Potatoes
Tomatoes
Turnips

Frozen Green Beans
Frozen Corn
Frozen Peas
Frozen French Fries
Canned Baked Beans
Canned Waxed Beans
Canned Corn
Canned Peas
Canned Tomatoes
Canned Tomato Juice

Fats and Oils

Margarine
Shortening
Salad Oil
Salad Dressing

Prepared Main Dishes

Meat Dinners
Pasta Based Dishes
Frozen Meat/Poultry Pies
Carry Out Foods

Sugar and Confections

Sugar
Confections

Coffee and Tea

Regular Coffee
Instant Coffee
Tea Bags

Other Foods

Pickles
Catsup and Sauces
Honey and Syrup
Jam
Seasonings
Canned Soup

Baby Food
Peanut Butter
Dessert Powder
Fruit Drink Crystals
Snack Food
Soft Drinks

FOOD PURCHASED FROM RESTAURANTS:

Breakfast
Lunch
Dinner

Snacks
Take-out orders

HOUSING ITEMS

SHELTER:

Rented Accommodation

Rent
Tenants' Repairs
Tenants' Insurance

Owned Accommodation

Property Taxes
Homeowners' Insurance
Homeowners' Repairs

HOUSEHOLD OPERATION:

Water, Fuel and Electricity

Water
Fuel Oil and Gas
Electricity

Communications

Local Telephone
Long Distance Telephone
Postage

Household Services

Day Care
Domestic Help
Babysitting
Lawyers' Fees

Pet Care

Pet Food
Veterinary Services

Household Cleaning Supplies

Detergent Powder
Liquid Detergent
Laundry Bleach
Fabric Softener
Floor and Furniture Wax
Scouring Powder

Paper and Plastic Products

Facial Tissue
Toilet Paper
Kitchen Paper Products
Plastic Garbage Bags
Plastic Food Wrap
Foil Wrap
Paper Towels

Garden Supplies

Nursery Stock
Flowers

Other Household Supplies

Light Bulbs
Dry Cell Batteries

HOUSEHOLD FURNISHINGS AND EQUIPMENT:

Furniture

- Bedroom Suites
- Living Room Tables
- Dining Room Sets
- Dinette Suites
- Sofas
- Dual Purpose Sofas
- Mattresses

Floor Coverings

- Carpeting
- Linoleum

Tableware

- Flatware
- Dinnerware

Household Textiles

- Bed Sheets
- Blankets
- Towels
- Ready Made Drapes/Curtains
- Yard Goods

Other Household Furnishings

- Refuse Containers
- Calculators

Major Household Appliances

- Vacuum Cleaners
- Dishwashers
- Refrigerators
- Ranges
- Washers
- Dryers
- Sewing Machines

Small Electrical Appliances

- Fry Pans
- Food Mixers
- Irons

Non-electric Kitchen Equipment

- Metal Cookware
- Glass Cookware

Tools and Outdoor Equipment

- Power Lawn Mowers
- Garden Tools
- Power Tools
- Household Tools

Service Repairs

- Repairs

CLOTHING ITEMS

WOMEN'S WEAR:

Women's Coats

Leather Coats
All Weather Coats
Jackets and Blazers

Women's Sportswear

Pants
Skirts
Sweaters
Blouses
Bathing Suits

Women's Accessories

Gloves
Handbags
Jewelry

Women's Dresses

Dresses
Pantsuits

Hosiery and Lingerie

Panty Hose
Slips
Briefs
Nightgowns
Robes
Brassieres

Women's Footwear

Dress Shoes
Casual Shoes
Sports Shoes

GIRLS' WEAR:

Girls' Coats

Cloth Coats
All Weather Coats

Girls' Sportswear

Pants
Sweaters
Jackets

Girls' Footwear

Street Shoes
Athletic Shoes

Girls' Dresses

Dresses

Hosiery and Lingerie

Socks
Underwear
Pyjamas

MEN'S WEAR:

Men's Coats

Overcoats
Parkas
Light Jackets

Men's Suits

Wool Suits
Sport Jackets

Men's Pants

Dress Pants
Casual Pants
Jeans

Furnishings and Underwear

Dress Shirts
Sports Shirts
Sweaters
Sport Socks
Underwear
Pyjamas
Bathing Suits

Men's Accessories

Gloves
Belts and Wallets
Watches

Men's Footwear

Hiking Boots
Casual Shoes
Athletic Shoes
Dress Shoes

BOYS' WEAR:

Boys' Coats

Ski Jackets
Lighweight Jackets

Suits and Pants

Sports Jackets
Pants
Jeans

Furnishings and Underwear

Woven Sports Shirts
Knitted Sports Shirts
Underwear

Boys' Footwear

Casual Shoes
Athletic Shoes
Snowboots/Winter Boots

INFANTS' WEAR:

Cloth Diapers
Disposable Diapers

Sleepers
Overalls

CLOTHING MATERIAL:

Cotton Print Material
Gabardine Material
Linings
Notions
Yarn

CLOTHING SERVICES:

Laundry Sent Out
Dry Cleaning
Coin Laundry
Shoe Repair

TRANSPORTATION ITEMS

PRIVATE TRANSPORTATION:

Auto and Truck Purchase

Automobiles
Trucks

Other Vehicle Purchase

Motorcycles

Auto and Truck Operation

Gasoline
Tires
Batteries
Maintenance and Repairs
Repair Parts
Insurance
Registration Fees
Parking

Other Vehicle Operation

Mixed Gas

Rented Vehicles

Car Rental

PUBLIC TRANSPORTATION:

Bus Fares
Taxi Service
Air Fares

HEALTH & PERSONAL CARE ITEMS

HEALTH CARE:

Eye Glasses
Dental Work
Denture Work
Prescribed Medicine
Non-prescribed Medicine
Medical Supplies

PERSONAL CARE:

Men's Hairstyling
Women's Hairstyling
Hair Preparation
Shampoos
Home Permanents and Colour
Hair Dryers
Curling Irons
Colognes
Cosmetics
Lotions
Toothpaste
Deodorants
Shaving Cream
Soap
Razor Blades
Toothbrushes
Sanitary Supplies

RECREATION, READING & EDUCATION ITEMS

RECREATION:

Home Entertainment

- Stereo Components
- Colour Televisions
- Phonograph Records
- TV Repairs
- Cablevision

Admission to Entertainment

- Movie Admissions

Outdoor Equipment

- Bicycles
- Camping Equipment
- Skis
- Tennis Racquets
- Fishing Rods and Reels
- Boats
- Outboard Motors

Home Recreation Equipment

- Toys
- Games
- Cameras
- Films

Fees for Activities

- Bowling
- Skating Admission

Travel Expenses

- Hotels
- Motels
- Travel Trailers
- Package Trips
- Other Expenses

READING:

- Newspapers
- Magazines
- Paperbacks

EDUCATION:

- Tuition Fees
- Music Lessons

TOBACCO AND ALCOHOL ITEMS

TOBACCO:

Cigarettes

Cigars

ALCOHOL:

Beer from Stores
Wine from Stores
Liquor from Stores

Beer from Licenced Premises
Wine from Licenced Premises
Liquor from Licenced Premises